(No Model.)

T. C. JOY.

CORE FOR CASTING RADIATOR SECTIONS.

No. 511,957. Patented Jan. 2, 1894.

Fig. 1.

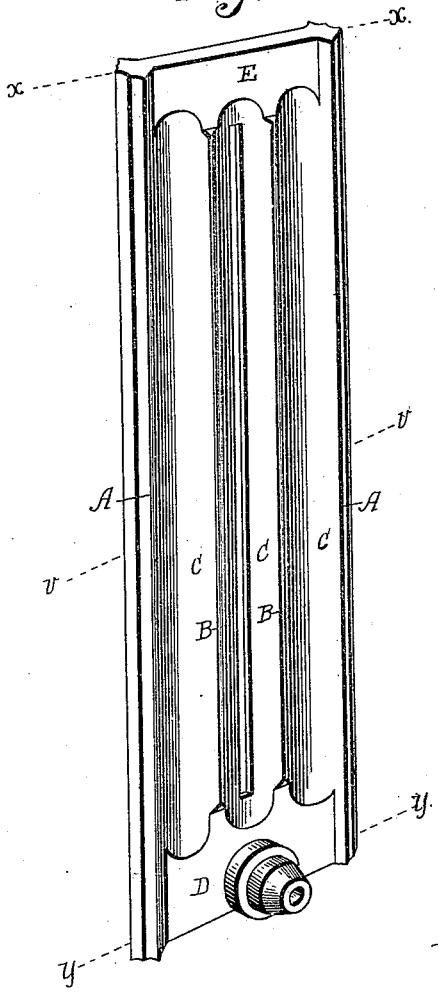


Fig. 2.

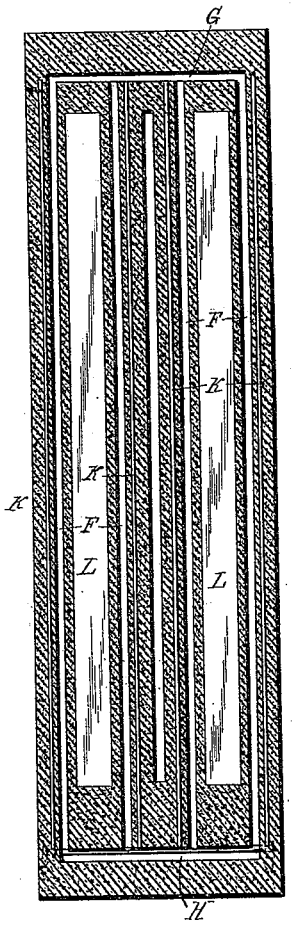


Fig. 3.

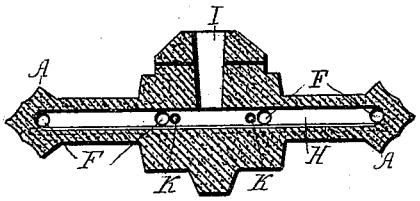
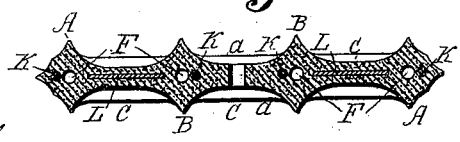


Fig. 4.



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CORE FOR CASTING RADIATOR-SECTIONS.

SPECIFICATION forming part of Letters Patent No. 511,957, dated January 2, 1894.

Application filed August 16, 1893. Serial No. 483,283. (No model.)

To all whom it may concern:

Be it known that I, THADDEUS C. JOY, a citizen of the United States, and a resident of Titusville, in the county of Crawford and State of Pennsylvania, have invented a new and useful Improvement in Cores for the Manufacture of Radiator-Sections, of which the following is a specification.

My invention relates to the manufacture of that class of steam or hot water radiators known as sectional radiators, and more particularly to those in which the sides of the sections are vertically corrugated, fluted or ribbed so that, when combined, the outer points of the corrugations or ribs, meet or nearly meet, and the depressed portions between the points form vertical flues for the passage of air between the sections; my object being to decrease the area of the steam space in the section and to increase the area of the air flues, without at all increasing the size of the radiator. I accomplish this in my peculiar manner of constructing the "core" around which the section is cast, which is the form of the steam chamber in the section.

As is well known in the process of casting, every radiator section must be cast around a core which gives form to the steam or hot water chamber within the section. It is also well known that vent channels must be made in the core, to allow of the escape of gases generated when the molten metal is poured into the mold; otherwise the gases explode and the casting is ruined.

Heretofore, as far as is known to me, it has been thought necessary to have the core of sufficient uniform thickness to allow of both vertical and transverse vent channels and strengthening bars (commonly designated tie-rods) to be placed in any portion of the core. When, to increase the radiating surface, solid vertical flanges or ribs are cast upon the sides of the section, the area of the steam space is not changed; but when these ribs or flanges are made hollow, or the sides corrugated, it is evident that the steam area is largely increased, and the area of air flues correspondingly diminished. It is to overcome this, that is the object of my present invention. I accomplish this by reducing the thickness of my core to such degree that transverse bent channels and tierods are impracticable at all points; but at some portion of the section, preferably at the ends, so increasing the thickness of the core at or near the base of the ribs transversely as to admit of such transverse channels and rods; while the vertical vents and rods are placed directly underneath and are covered by the flutings or corrugations.

In the accompanying drawings Figure 1 represents the core used for casting one section of my radiator, showing the form of the section inside, and the interior arrangement of the vent channels and tierods in relation to the outer surface; Fig. 2, a vertical intermediate section taken on line x—x of Fig. 1; Fig. 3, a cross section on line y—y and Fig. 4, a cross section on line v—v.

In the several views the same letters are used to indicate the same or similar parts.

It being understood that the reverse side of the core presents the same appearance as that shown in Fig. 1 A. A. are the vertical outside ribs or corrugations extending from the top to bottom of the section; B. B. intermediate ribs.

C. C. C. are the depressions between the ribs, forming in the section, the vertical air flues.

At the bottom D. and top E. the core is made of a less thickness than between the extremities of the ribs A. and B. but thicker than between the depressions C. on the one side, and the corresponding depressions on the other.

F. are the vertical vent channels in the core; G. the cross vent channel at the top connecting the vertical channels, and H. a similar cross vent channel at the bottom, also connecting the vertical channels, and also connecting with the vent I in the base, through which all the gases generated in the casting may escape.

K. are the vertical tierods, strengthening the core for handling and placing in the mold.

L are thin flat pieces of metal strengthening the core in the thin places.

It will be noticed by an examination of the drawings that the vertical vent channels and vertical tierods are placed in the core under the raised or projecting portions which in the casting, form the projecting hollow ribs and where the core is thick enough to leave proper sustaining walls around the vent channels.

Also the connecting cross vent channel across the top is through the thicker end E. and the similar channel at the bottom is also in the thicker portion D. which thick portion D. and E. are purposely left so there will be sustaining walls around the vent channels, while in the depressed space C. between the vertical ribs, the core is thinned down or depressed below the plane of the ends D. and E. to such an extent that the vent channels could not be made therein.

The relative positions of the several parts are shown in Fig. 4, where the full section lines show the core as cut across on line *v*—*v* (Fig. 1.) and the lines *a*—*a* denote the thickness of the ends D. and E.

It must be remembered that the core is of the same size and shape as the steam space in the completed section. Therefore, the core being thinned down between the ribs, reduces the area of the steam space very much more than if all the core was of the same thickness as at the top and bottom. Also, since the points of the ribs B. determine the thickness and distance apart of the section, the area of the air flues C. is correspondingly increased as the steam space is reduced.

While I have here shown and described the core as made sufficiently thick at the top and bottom to allow of vent channels, I do not limit myself to this, as the same result would be secured by having the thickness at any point between the top and bottom, leaving the extremes thin.

What I claim as my invention is—

1. A core for casting radiator sections, having longitudinal ribs, transverse thickened portions, cross passages in said thickened portions, and passages beneath the ribs and connecting with the cross passages; substantially as shown and described.

2. A core for casting radiator sections, having longitudinal ribs, transverse thickened portions, cross passages in said thickened portions, passages beneath the ribs and connecting with the cross passages, and tie rods within the ribbed portions; substantially as shown and described.

3. A core for casting radiator sections, having longitudinal ribs, transverse thickened portions, cross passages in said thickened portions, passages beneath the ribs and connecting with the cross passages, tie rods within the ribbed portions, and metal plates in the thin portions between the ribs; substantially as shown and described.

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